

ELECTRICAL PASSIVATION OF SILICON-CONTAINING SURFACES USING ORGANIC LAYERS

ABSTRACT OF THE DISCLOSURE

Electrical structures and devices may be formed and include an organic passivating layer that is chemically bonded to a silicon-containing semiconductor material to improve the electrical properties of electrical devices. In different embodiments, the organic passivating layer may remain within finished devices to reduce dangling bonds, improve carrier lifetimes, decrease surface recombination velocities, increase electronic efficiencies, or the like. In other embodiments, the organic passivating layer may be used as a protective sacrificial layer and reduce contact resistance or reduce resistance of doped regions. The organic passivation layer may be formed without the need for high-temperature processing.

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